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ABSTRACT

A simple and cheap manual double entry continuous transaction posting system with running balances is developed for bookkeeping by small libraries. A very small library may operate without any system of fiscal control but when a library's budget approaches three figures, some kind of bookkeeping must be introduced. To maintain control over his operations, the librarian will want to monitor his library's financial condition to keep expenditures within the budget and avoid over or underspending. He will also want to have a record of all the money spent for the many purposes of the library as a basis for planning operations, preparing budgets, for annual reports, monthly summaries that provide background for wise purchasing decisions, for comparisons with other institutions, for trend studies, and similar management purposes. The system presented is suitable for the control of any number of library allocations, for purchases of books, periodicals, audiovisual media, library supplies, bindery work, and related expense categories. The control of salaries, taxes, capital investments, depreciation, and similar problems of public accounting, however, are considered to be outside the scope of simple library bookkeeping. Numerous illustrations and a sample combination journal and ledger form are provided. (Author/RAA)

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SIMPLE LIBRARY BOOKKEEPING

by

HERBERT H. HOFFMAN

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Third Printing, Unchanged

To Pat Kinnaman,
Serials Assistant,
Santa Ana College Library

In acknowledgement of steady moral support
and many examples!

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INTRODUCTION

A very small library run by a part time volunteer can probably get by without any system of fiscal control. But the moment a library's budget begins to run to three figure allocations or more some kind of bookkeeping must be introduced.

Even in a small library there may be one fund for the general library collection, perhaps a separate fund for the Children's department, and a fund for supplies. In a larger library there may be separate funds for branches and for various subject departments; there may be local funds and district funds and federal grants; funds for books, for periodical subscriptions, and for supplies. The more complex the financing, the greater the proliferation of separate budget allocations is likely to be, and the more important the functions of library bookkeeping become.

To maintain control over his operations the librarian will want to monitor his library's financial condition to keep expenditures within the budget and avoid over- or underspending. He will also want to have a record of all the money spent for the many different purposes of the library as a basis for planning future operations, preparing the next budget, for annual reports to

governing boards, monthly summaries that provide the factual background for wise purchasing decisions, for comparisons with other institutions, for trend studies, and similar management purposes.

To fulfill these functions a library's bookkeeping system must account for every dollar spent, earmarked to be spent ("encumbered", as the technical term goes), and left over to be spent. It must do so reliably and on demand, i.e. instantly or at least on a day-to-day basis. Such a system must be complete, accurate, flexible, and responsive. In addition, the system should also be simple and cheap.

In the following pages a simple and cheap manual double-entry continuous transaction posting system with running balances is presented that is suitable for the control of any number of library allocations for purchases of materials and services such as books, periodicals, audio-visual media, library supplies, bindery work, and related expense categories. The control of salaries, taxes, capital investments, depreciation, and similar problems of public accounting, however, are considered to lie outside the scope of simple library bookkeeping.

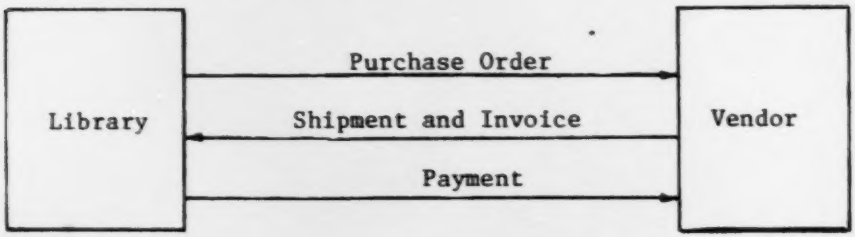
1. DATA REQUIRED BY A LIBRARY BOOKKEEPER

A library bookkeeping system, like any system in any other field of human enterprise, needs certain basic information without which effective control cannot be maintained. A library bookkeeper cannot be expected to balance the accounts if he does not have access to cost information contained in purchase orders, requisitions, invoices, statements, credit vouchers, and all other financial documents that pertain to the various transactions.

Essentially, a bookkeeper must have four types of information:

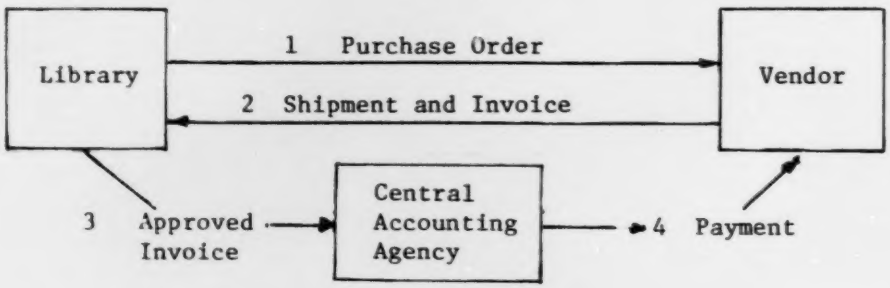
1. The total budget allocation or appropriation for each fund to be controlled.
2. A record of each new transaction to be charged against library funds, complete with estimated costs (purchase orders or requisitions, for example).
3. Documentary records pertaining to the payment of these transactions (invoices or vouchers, for example).
4. A periodic treasurer's or bank balance for reconciliation with the library's balance.

These necessary records may or may not be readily available. Much depends on the nature and history of the institution in which the library is situated, for the flow of purchase orders, shipments, invoices, and payments occurs in certain characteristic patterns that influence the generation and routing of the essential financial records. The simplest flow can be pictured as follows:



This is the model of a library that places its own purchase orders, receives all books and invoices directly, and writes all pay warrants. In this simple aquisitions flow pattern the library bookkeeper has all the information he needs to maintain control: purchase orders, invoices, and checks. Such simple systems, needless to say, are rarely if ever found in the real world.

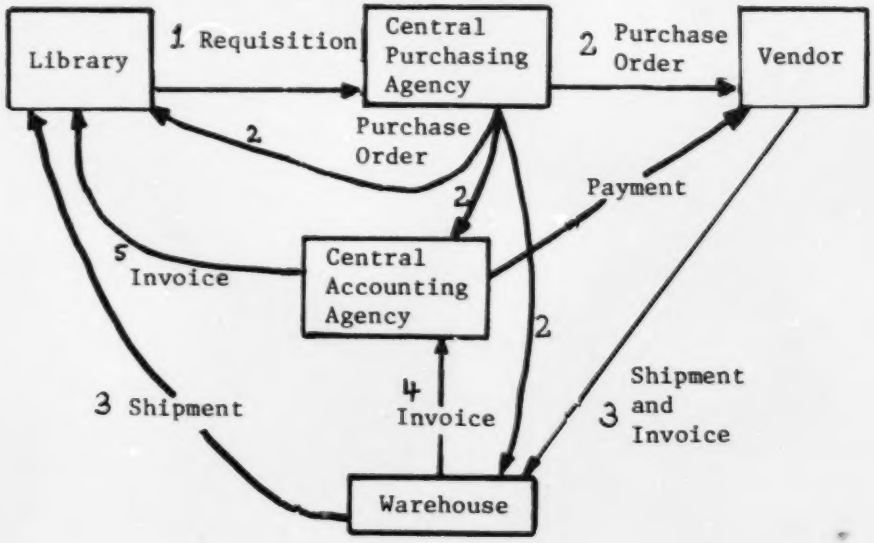
It is more likely for a library to operate on the following cycle:



Under this acquisitions system the library places its own purchase orders directly with vendors (1). This gives the library's bookkeeper the information he needs to maintain a record of how much money is likely to be spent, or technically, allows him to "post encumbrances".

The books and associated invoices are shipped directly to the library (2). This gives the library staff a chance to check all shipments and to approve the invoices for payment. These invoice amounts confirm or correct the earlier estimates or encumbrances. The bookkeeper uses the invoices to balance the book. Under this simple triangle system, therefore, the bookkeeper has all the information needed to monitor the library's funds with accuracy even though the actual payment is made by a central accounting agency (3) and (4).

Many institutions operate on a more complex cycle like this:



Under this system the library merely issues requisitions (1). These contain estimated prices and can be used by the library's bookkeeper to encumber the money. The requisitions are sent to a central purchasing agency where the actual purchase orders are prepared (2). Copies of the purchase orders are forwarded to the library, to a central accounting agency, and to the warehouse. The library's copy is used by the bookkeeper to check the encumbrances for accuracy. It should be noted here that bookkeeping is exacting work. The financial records must be 100 per cent accurate if the books are to balance. Systematic double checks like these are therefore highly recommended. They take little time and increase the bookkeeper's confidence in his records measurably.

The materials ordered are shipped by the vendor to the warehouse (3). The associated invoices go to the central accounting agency (4). Now, unless a firm agreement is reached under which a copy of every paid invoice or some other voucher or written notification of payment is sent to the library (5), no accurate and reliable fund control can be maintained by the library. If such an agreement is absent the library, having knowledge only of estimated costs but not of actual expenditures, which two quantities almost always vary, is forced to operate on the basis of progressively less reliable information. At the end of the fiscal year the librarian, instead of being able to say precisely where he stands, would at best be able to guess that he "probably" did not overspend or, which may be worse, underspend. Unspent monies usually revert to a general fund at the end of an institution's fiscal year and many a librarian has "lost" hundreds of dollars because his financial records were incomplete. Bookkeeping without adequate data leads to accounting based on probability and hope rather than fact and certainty.

2. PRINCIPLES OF DOUBLE-ENTRY BOOKKEEPING

The basis of a double-entry library bookkeeping system is the relationship between the amount of money budgeted on the one hand, and the disposition of this money on the other hand. This relationship can be stated in equation form as follows:

Appropriation = Encumbrances + Payments + Free Money

where "encumbrances" means money earmarked for outstanding orders, and "payments" means money actually spent. In the language of the accountant, one could consider the left or appropriation side of the equation, the assets; and the right side, the liabilities.

The three terms on the right or liability side of the equation are the three basic accounts that contain all the information necessary to maintain a running check on the status of the budget. Here is an example. Suppose a library had two funds to control, Books and Serials. The book fund holds an appropriation of $1,000.00 and the serials fund contains $500.00. On the first day of the fiscal year, not having had a chance to spend any money yet, the library should have accounts that look like this:

	Appro-priations =	Encum-brances +	Payments +	Free Money
Book fund	1,000.00	0	0	1,000.00
Serials fund	500.00	0	0	500.00
	1,500.00			1,500.00

If we can assume for the moment that no change takes place on the assets side during the budget year, we can say that library bookkeeping consists of recording the changes within and among the accounts on the liability side of the equation that occur with each transaction. Thus, toward the middle of the year, part of the money having been spent, the six liability accounts involved might look like this:

	Appro-priations =	Encum-brances +	Payments +	Free Money
Book fund	1,000.00	300.00	200.00	500.00
Serials fund	500.00	200.00	200.00	100.00
	1,500.00	500.00	400.00	600.00

And on the last day of the fiscal year, if all had gone according to plans, the picture should be this:

	Appro-priations =	Encum-brances +	Payments +	Free Money
Book fund	1,000.00	0	1,000.00	0
Serials fund	500.00	0	500.00	0
	1,500.00	0	1,500.00	0

Two principles arise from this demonstration: 1. Whatever is added to one side of the accounting equation has to be counterbalanced by an equal addition on the other side. An appropriation of $1,000.00 in the book fund must be accompanied by a liability that totals $1,000.00. It always is in the three examples just shown. 2. Whenever a change is made in an account that affects only one side of the equation, that change must be accompanied by a change in the opposite direction in one or more of the other accounts on the same side of the accounting equation.

The second principle sounds complicated. It is actually quite simple. If the Free Money account for the book fund is reduced by $500.00, the Encumbrance and/or Payment accounts must be increased by a total of $500.00 to keep the equation balanced. Look at the example at the bottom of page 8: the sum of the encumbrances and the payments equals $900.00. This is the amount by which the Free Money account was reduced.

If these two principles are correctly and consistently applied we find that whatever is done to a fund, the two sides of the equation always balance. If they fail to balance this indicates that some mistake has been made.

Here is the recapitulation of the book fund shown above at three stages of the fiscal year. The reader will notice that perfect balance had been maintained at each stage.

BOOK FUND	Appro-priations =	Encum-brances +	Payments +	Free Money
Beginning of year	1,000.00	0	0	1,000.00
Middle of year	1,000.00	300.00	200.00	500.00
End of year	1,000.00	0	1,000.00	0

This tabulation captures the essence of simple library double-entry bookkeeping: the sum of the liabilities equals the appropriations, line for line. That same balance of assets against liabilities is also the basis of any other bookkeeping system, including the most sophisticated computerized central accounting system yet devised. Granted, high powered machine processing of financial data adds many refinements. But the basic principles of double-entry bookkeeping remain the same, by whatever name they may be called.

3. COMBINATION JOURNAL AND LEDGER FORM FOR LIBRARY APPLICATIONS

As the name "bookkeeping" implies, financial records are maintained in some sort of "book". Such books traditionally take the form of yellow or green journal and ledger sheets on which any number of columns and lines have been printed. To simplify library bookkeeping without loss of critical information, and to enable the library's bookkeeper to show current balances at all times, a special combination journal and ledger form was developed for Simple Library Bookkeeping. An example is inserted in the center of this book. The form has a total of 17 columns. The first five and the tenth (clear) column hold reference information. The remaining eleven columns are for entering or "posting" money amounts as assets or liabilities. Naturally, all ledgers resemble each other somewhat since they all record the same kinds of transactions -- receipts and expenditures of money. But the terminology for the various rubrics and columns employed on the actual forms is by no means standardized. The following chart summarizes the terms used in this manual.

Total Library Appropriation											
Fund 1 (e.g. "books")				Fund 2 (e.g. "Serials")				Fund n			
Assets	Liabilities			Assets	Liabilities			Assets	Liabilities		
Appropriations account	Encumbrances account	Payments account	Free Money account	Appropriations account	Encumbrances account	Payments account	Free Money account	Appropriations account	Encumbrances account	Payments account	Free Money account

The sample form inserted in the center of this book provides for the record of 31 transactions pertaining to one single fund. The bookkeeper uses as many sheets as are needed for each fund. If more than one fund is to be controlled the bookkeeper maintains as many sets of forms as there are separate divisions of the total library appropriation.

The "Appropriations" account on the assets side has two columns, a debit column (dr) and a balance column (bal). On the liability side, the three accounts each have three columns, a debit (dr), a credit (cr), and a balance column (bal).

The work of bookkeeping consists of posting transactions to the ledger in the order of their occurrence, one transaction per line. We shall look at the money postings first (columns 6 to 17). The posting of reference information (columns 1 to 5) will be discussed in a later chapter.

A transaction, for bookkeeping purposes, is any change of status in one or more accounts occasioned by the library's buying or contracting for materials and services.

Two kinds of transactions are possible: an account can either be increased, or it can be diminished. The first transaction in any ledger is, logically, the posting of the original appropriation, an increase in the asset account "Appropriations".

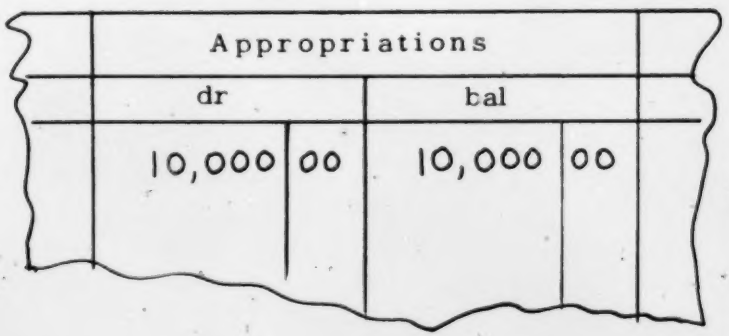
Most subsequent transactions are postings related to expenditures which diminish one of the liability accounts.

Since according to the wellknown accounting principles stated on page 9 an amount entered on the asset side must always be counterbalanced by an equivalent entry on the liability side of the ledger, and the amounts on the liability side must always remain in balance, it is very important that all postings be made in their correct columns. In other words, the bookkeeper must thouroughly understand the difference between debit and credit postings.

The terms "debit" and "credit" are traditional column headings dating back to the Renaissance. The words, however, have now little meaning in themselves. In fact, we could just as well call them the left side and the right side of the account. I have called the columns "dr" and "cr" in keeping with tradition.

By convention, bookkeepers use the left (dr) column to enter amounts by which an asset account is increased and a liability account is diminished. They use the right (cr) column to enter amounts by which a liability account is increased and an asset account is diminished.

Here is an example of a transaction posting. Let us say we had a fund designated "books" (other funds being called "serials", "audio-visual", and so forth) with an appropriation of $10,000.00. On the first day of the fiscal year the bookkeeper would make a debit entry of $10,000.00 in the dr column of the appropriations account. This increases the account from zero to 10,000.00. Here is that posting:



This asset increase must be counterbalanced by an increase on the liability side of the ledger. The appropriation, of course, is money available for spending. It is obvious, then, that the $10,000.00 appropriation should be posted as an increase in the free money account.

It should be noted that this last of the liability accounts on the form introduced here is often referred to as the "balance" or the "free balance". I have introduced the more descriptive name "free money" for this account. It seemed to me to be better

English to report the "balance of the free money" instead of the "balance of the balance" or the "balance of the free balance".

An increase on the liability side, of course, is posted as a credit entry. The bookkeeper enters $10,000.00 in the cr column of the free money account which increases the balance of that account from zero to 10,000.00:

	Free Money		
	dr	cr	bal
		10,000 00	10,000 00

Here is the complete line of the ledger entry after this posting (omitting all reference information for the moment):

Appropr.		Encumbrances			Payments			Free Money		
dr	bal	dr	cr	bal	dr	cr	bal	dr	cr	bal
10,000 00	10,000 00								10,000 00	10,000 00

Notice that the addition (dr) of $10,000.00 on the asset side is balanced by an addition (cr) of $10,000.00 on the liability side of the accounting equation. Compare also Transaction 1 on the sample form inserted in the center of this book.

The assets in a library are likely to remain quite stable throughout the fiscal year. Most transactions, therefore, will be postings on the liability side of the ledger. Here is an example of such a transaction. Let us suppose a purchase order had been issued for books expected to cost $100.00. Clearly, this reduces the amount of money that is free to be spent. The

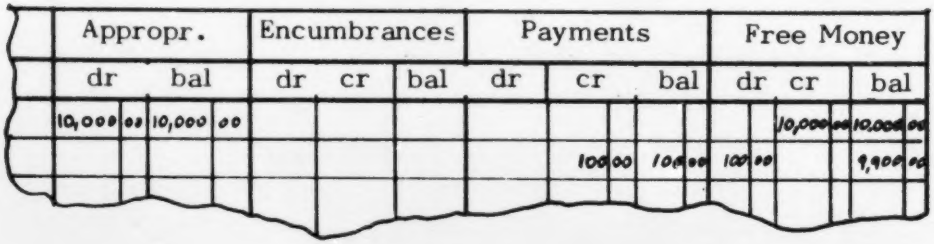
bookkeeper must decrease the free money account by $100.00. This is done by means of a dr entry. Here is that posting:

	Free Money					
	dr		cr		bal	
			10,000	00	10,000	00
	100	00			9,900	00

Let us assume that this was a cash transaction, an immediate payment for delivered books. To keep the ledger in balance the dr posting of $100.00 must be counterbalanced by a credit posting of the same amount on the same side of the equation, the liability side. A moment's reflection will show that this payment constitutes an increase in the total amount of money spent. It results, therefore, in a cr posting in the payments account:

	Payments						
	dr		cr		bal		
			100	00	100	00	

Here are the first two lines of the ledger as they now look (again without reference information for the moment):



	Appropr.		Encumbrances			Payments			Free Money		
	dr	bal	dr	cr	bal	dr	cr	bal	dr	cr	bal
	10,000 00	10,000 00								10,000 00	10,000 00
							100 00	10,000 00	100 00		9,900 00

The same postings have been repeated on the ledger sheet inserted in the center of this book (see Transactions 1 and 2).

These examples just given capture the essence of double-entry bookkeeping using the combined journal and ledger sheet with running balances. Emphasis must be placed on the fact that in a properly maintained book the sum of the balances on the liability side must always equal the balance of the appropriations account, line for line. Thus, in the example at the top of this page the sum of the balances on the liability side (9,900.00 + 100.00) equals the balance of the appropriations account (10,000.00). If this test fails on any line of the ledger it indicates that an error has been made!

Since it is so important to keep the book balanced, and since so much depends on posting the transactions in the proper columns, a little mnemonic rule is offered here:

"On the liability side, a debit diminishes an account"

For those that want another mnemonic rule, I offer this:

"On the liability side, a credit increases an account"

Here is a schematic table that recapitulates the nature of debits and credits:

ASSET SIDE		LIABILITY SIDE	
Addition to Account	Reduction of Account	Reduction of Account	Addition to Account
DEBIT	CREDIT	DEBIT	CREDIT
dr	cr	dr	cr

It should also be noted that the appropriations account on the combined journal and ledger form introduced here does not carry a cr column. It was omitted because decreases in a library's appropriations are too rare to justify space on the form. Such transactions can be handled in other ways as will be shown in the next chapter.

Fund Designation "Books"

Sheet Number 1

Reference Information					Appropriations		Encumbrances				Payments			Free Money		
LINE OR TR. #	1977 DATE	PURCHASE ORDER NUMBER	TRANS. TRACING	MEMO	dr	bal	dr	cr	Clear	bal	dr	cr	bal	dr	cr	bal
1	1 July			Appropriation	10,000 –	10,000 –									10,000 –	10,000 –
2	5	16970		B&T								100 –	100 –	100 –		9,900 –
3	12	23019		ASR				150 –	✓	150 –				150 –		9,750 –
4	21	23019		ASR inv. 3392			150 –		✓	-0-		150 –	250 –			
5	22	23113		Crofts				100 –	✓	100 –				100 –		9,650 –
6	25	23113		Crofts inv. A-237			100 –		✓	-0-		90 –	340 –		10 –	9,660 –
7	1 Aug	26771	13	ASR				100 –	✓	100 –				100 –		9,560 –
8	3	27623	10, 12	Crofts				100 –	✓	200 –				100 –		9,460 –
9	6	27718	16, 18	B&T				900 –	✓	1,100 –				900 –		8,560 –
10	10	27623	8	Crofts inv. B-918			50 –		✓	1,050 –		50 –	390 –			
11	11	30890	14, 15	ASR				100 –	✓	1,150 –				100 –		8,460 –
12	17	27623	8	Crofts inv. D-1811			50 –		✓	1,100 –		60 –	450 –	10 –		8,450 –
13	18	26771	7	ASR inv. 3418			100 –		✓	1,000 –		110 –	560 –	10 –		8,440 –
14	19	30890	11	ASR inv. 5728			100 –		✓	900 –		90 –	650 –		10 –	8,450 –
15	22	30890	11	ASR adj. inv. 5726					✓		5 –		645 –		5 –	8,455 –
16	24	27718	9	B&T inv. TB-22946			900 –		✓	-0-		890 –	1,535 –		10 –	8,465 –
17	25	27719	19	B&T				155 –	✓	155 –				155 –		8,310 –
18	26	27718	9	transposition corr.					✓			90 –	1,625 –	90 –		8,220 –
19	30	27719	17	cancellation			155 –		✓	-0-					155 –	8,375 –
20	31			Title 9 Appropriation	500 –	10,500 –									500 –	8,875 –
21	6 Sep			Transfer to "SERIALS"	(300 –)	10,200 –								300 –		8,575 –

Blanks of this
Combination Journal and Ledger Form
are available from
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Newport Beach, CA 92660

Price: 10 for $1.00
plus tax and shipping

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4. POSTING DIFFERENT KINDS OF TRANSACTIONS

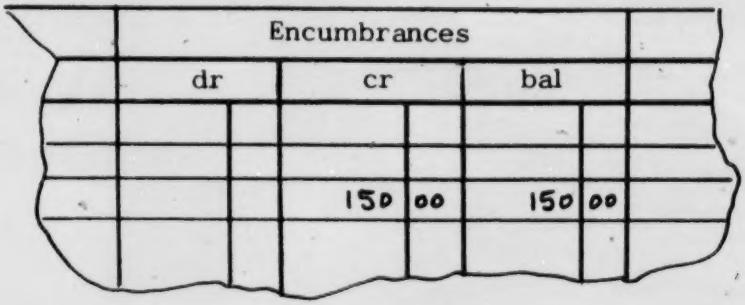
Two simple kinds of transactions were shown in the previous chapter: a straight appropriation posting and a direct payment. More complex transactions frequently occur in library bookkeeping.

It is one of the features peculiar to libraries that books and similar materials ordered today are not actually paid for until much later. In the meantime, the money needed to pay for the materials is no longer free to be spent. Librarians say that a given fund is "encumbered" when an order is placed. The encumbrance account is like a reserve pocket into which money is placed that has been earmarked for a certain purpose.

To continue with the same ledger that we left on page 17 let us say that on the third line a transaction is to be posted that records the placement of a purchase order for $150.00. This means, first of all, that that much money is no longer free to be spent. The free money account must be diminished by $150.00. Here is the necessary dr entry:

	Free Money					
	dr		cr		bal	
			10,000	00	10,000	00
	100	00			9,900	00
	150	00			9,750	00

At the same time, the amount of $150.00 must now be kept in reserve until the invoice is presented for payment. This is done by increasing the encumbrance account:



	Encumbrances		
	dr	cr	bal
		150 00	150 00

Here is the entire transaction again (without reference information, and without the appropriations):

	Encumbrances			Payments			Free Money		
	dr	cr	bal	dr	cr	bal	dr	cr	bal
								10,000 00	10,000 00
					100 00	100 00	100 00		9,900 00
		150 00	150 00				150 00		9,750 00

Clearly, the dr entry is balanced by an equivalent cr entry on the same line. We also see that the sum of the three liability account balances (150.00 + 100.00 + 9,750.00) equals the original appropriation of $10,000.00. In other words, the book is in balance at line three. After the posting of the third transaction the bookkeeper is able to read off exactly how much money is left in the fund to be spent on books: $9,750.00.

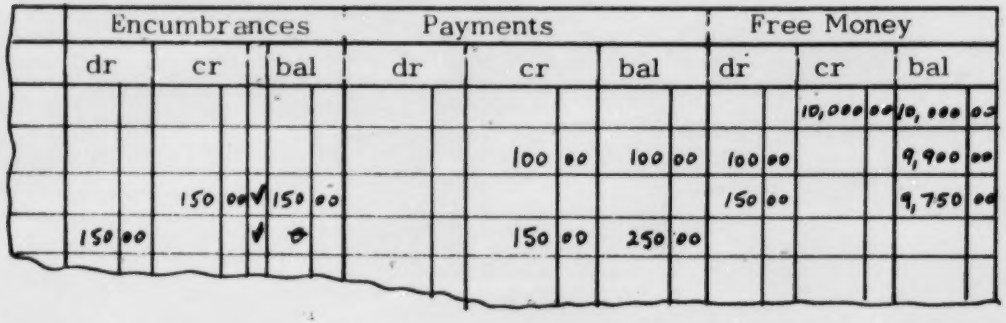
Let it be assumed for the sake of demonstration that the very next transaction coming up shall be an invoice or payment in full settlement of this purchase order, and that the actual price is exactly as expected, $150.00. This being a payment transaction, it results in a cr entry recording an increase in the payments account on line 4. This credit entry increases the account balance from 100 to 250. Here is the posting:

Payments					
dr		cr		bal	
		100	00	100	00
		150	00	250	00

Since this credit entry is only another event in the history of one purchase order that began with an encumbrance on line 3, and since the transaction merely records the fact that a payment was made which offset a previous encumbrance or estimate in the same amount, the free money balance is not affected. But since every credit entry must be counterbalanced by a corresponding debit entry on the same side of the accounting equation to keep the book in balance, we must make our dr entry in this case in the encumbrances account. We "disencumber" the money. This decreases the encumbrance balance from 150 to zero:

Encumbrances					
dr		cr		bal	
		150	00	150	00
150	00			~~0~~	

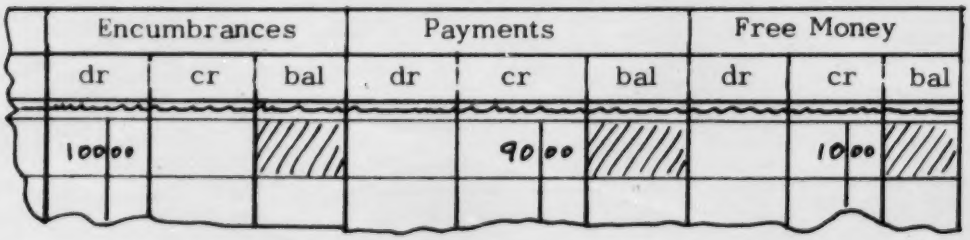
Here is the entire transaction of line 4 again (liability side only). Notice the check marks in the reference column in lines 3 and 4. They signify that the purchase order in question has been cleared completely, that the books ordered have been received and paid for in full:



	Encumbrances			Payments			Free Money		
	dr	cr	bal	dr	cr	bal	dr	cr	bal
								10,000 00	10,000 00
					100 00	100 00	100 00		9,900 00
		150 00 ✓	150 00				150 00		9,750 00
	150 00		✓ 0		150 00	250 00			

(See also transactions 3 and 4 on the ledger sheet, center of book)

In real life, books and other library materials seldom cost exactly what was estimated. The invoice amount is either a little more or a little less than the encumbered amount. Supposing a purchase order had been placed for books expected to cost $100.00. The invoice, however, comes to only $90.00. We shall have ten dollars left over at the end of this transaction, which might be posted as follows (balances and previous postings not shown to keep the example clear):

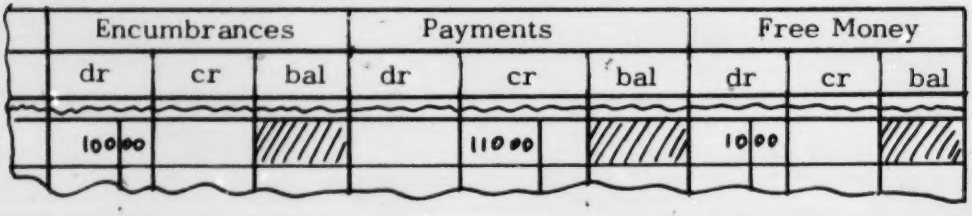


	Encumbrances			Payments			Free Money		
	dr	cr	bal	dr	cr	bal	dr	cr	bal
	100 00				90 00			10 00	

29

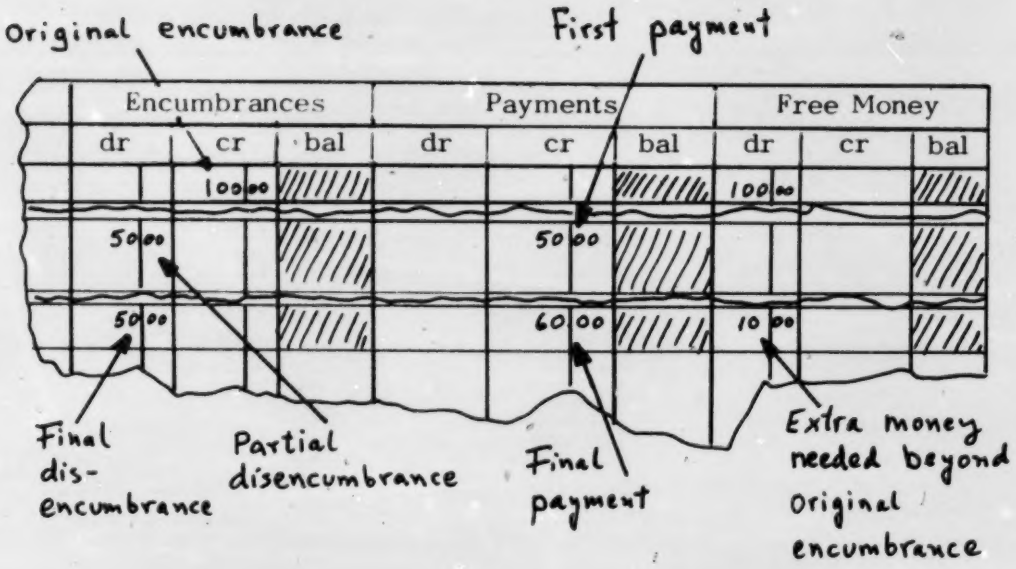
The disencumbrance action leaves us with a dr posting of $100.00. Every debit on the liability side must be balanced by credits in the same amount. The actual payment comes to only $90.00. Hence an additional cr posting of $10.00 in the free money account must be made. Notice that $100.00 in debits are now offset by $100.00 in credits. This is an example of a liability transaction that results in changes in all three of the liability accounts. Also notice that every dollar amount is entered twice per line whence the name double-entry bookkeeping.

If the invoice amount for a certain purchase order exceeds the amount encumbered the following type of ledger entry results (again without balances and previous postings to simplify the example):



As we can see, if a total of $110.00 shows on the credit side, this amount must be balanced by a total of $110.00 on the debit side. These transactions have also been entered on the ledger sheet , center of this book (see transactions 5, 6, 7, and 13).

Should it happen that payment for a certain purchase order estimated to cost $100.00 is made in two installments of $50.00 and $60.00, for example, we might post the requisite transactions as follows (again without balances and without previous and intervening postings for simplicity's sake):



When these transactions have been posted we see once more that on each line of the ledger every dr entry is balanced by equal cr entries, that the book remains in balance (see also transactions 8, 10, and 12 on the ledger sheet in the center of this book).

Errors happen, of course. Take the case of an overcharge. Suppose an invoice had been for the amount of $90.00. Here is the payment transaction as posted:

	Encumbrances			Payments			Free Money		
	dr	cr	bal	dr	cr	bal	dr	cr	bal
	100 00				90 00			10 00	

After the payment has been made it is discovered that a special rebate should have been applied. The vendor makes a cash refund of $5.00. All posting is done line for line. The posting of $90.00 in the cr column above was correct at the time of the payment. This line is not touched again. Later information is handled by a separate line or transaction to offset the original mistake in billing:

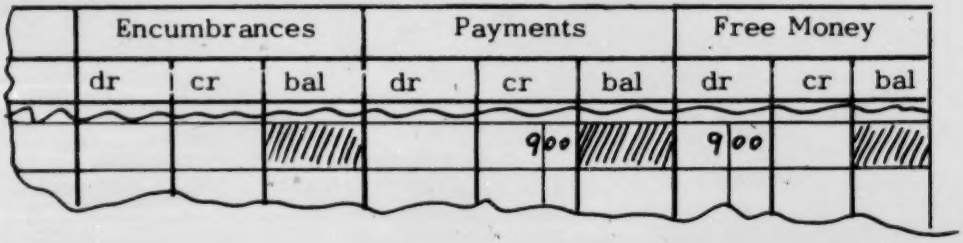
	Encumbrances			Payments			Free Money		
	dr	cr	bal	dr	cr	bal	dr	cr	bal
				5 00				5 00	

Since the library paid too much the refund can be seen as a decrease of the payments account. The resulting dr entry in payments is offset by an equal cr entry in the free money account. A suitable explanatory remark is made in the "Memo" column. More about that in the next chapter. (See also transactions 11, 14, and 15 on the ledger sheet, center of this book).

Posting errors also happen. An invoice came to $98.00 and a pay warrant in that amount was issued. By transposition, the erroneous amount of $89.00 was posted in the payments account. Here is the entry:

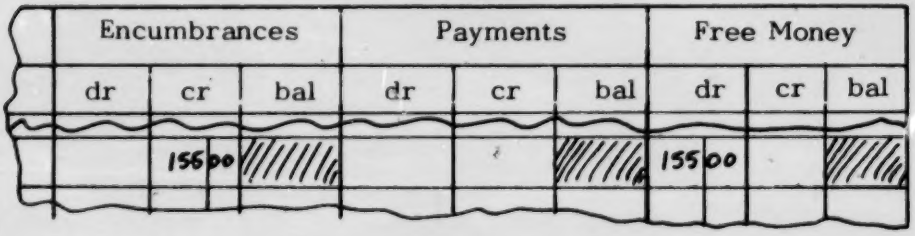
	Encumbrances			Payments			Free Money		
	dr	cr	bal	dr	cr	bal	dr	cr	bal
	100 00				89 00			11 00	

This error results in a perfectly balanced ledger entry. It will go undetected until the ledger is reconciled with the records of the central accounting agency. At that time an adjustment has to be made on a new line as follows:

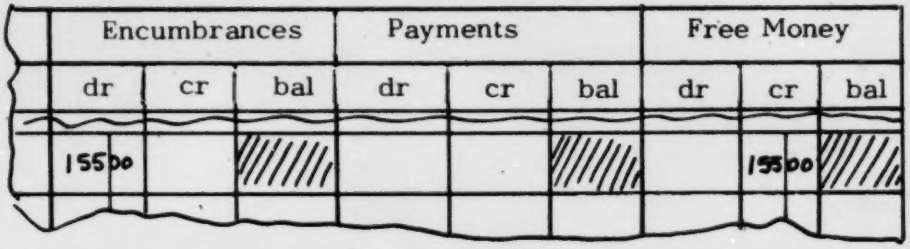


A moment's reflection will confirm that the accounts are now in agreement with the facts: a total of $98.00 were paid to the vendor, and the difference between the encumbrance ($100.00) and the invoice amount ($98.00) was credited to the free money account ($2.00). Again, a suitable note would be made in the "Memo" column. A similar case is shown on the ledger sheet, center of this book (see transactions 9, 16, and 18).

Sometimes the material ordered is unavailable. This may result in a cancellation. A purchase order was written and the amount of $155.00 was encumbered. Here is the transaction as posted:



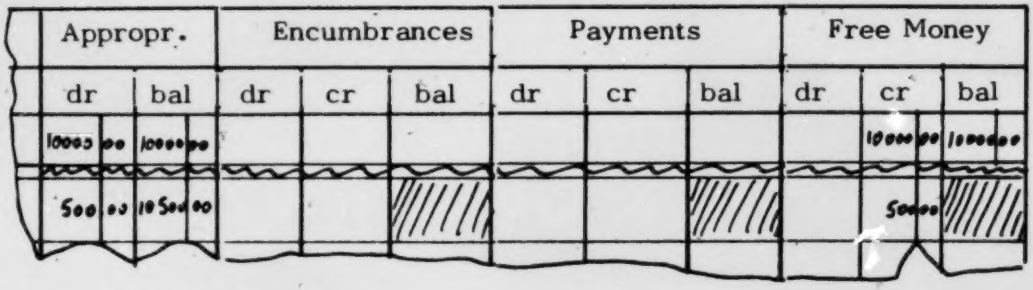
At a later stage in the cycle the entire order has to be cancelled. Here is the corresponding disencumbrance transaction on a later, separate line of the ledger (earlier lines not shown for simplicity):



(See also transactions 17 and 19 on the ledger sheet, center of book)

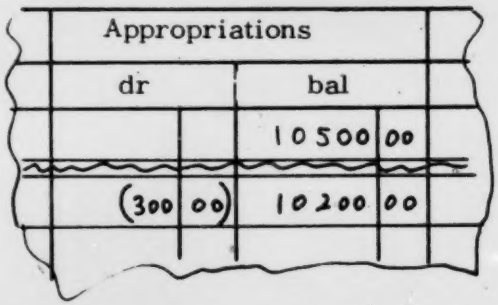
Throughout, of course, we see that on every line the total debits equal the total credits. In other words, the ledger remains in balance. Careful and thoughtful posting of all transactions will keep it that way, and a balanced ledger is, of course, the sine qua non of any bookkeeping system.

In addition to the original appropriation entry, two possible changes can occur on the asset side of the library's books. There is always the possibility of additional money being made available. If this happens, the book is easily updated: the additional amount is posted as a debit on the asset side, and as a credit in the free money account on the liability side (intervening postings not shown in detail to keep the example clear):



(See also transaction 20 on the ledger sheet in the center of this book)

The other kind of change possible is, of course, a reduction in the appropriation. This can happen whenever money is transferred from one fund to another. Since the ledger sheet provides no credit column for asset reduction posting, the amount by which a fund is to be diminished is posted in the dr column, but enclosed in parentheses:



Of course, any such fund reduction must be counterbalanced by a dr posting on the liability side. Here is the entire sample transaction (again without intervening postings to keep the picture clear):

Approp.		Encumbrances			Payments			Free Money		
dr	bal	dr	cr	bal	dr	cr	bal	dr	cr	bal
	1050000									1050000
(30000)	1020000							30000		1020000

(See also transaction 21 on the ledger sheet in the center of this book)

It is possible -- even likely -- that on the last day of the fiscal year there will be an excess of unspent money. If the fund has to be cleared on that day the last posting of the year will be a credit posting on the assets side; Here is an example. Shown are the last two transactions of the fiscal year:

Approp.		Encumbrances			Payments			Free Money		
dr	bal	dr	cr	bal	dr	cr	bal	dr	cr	bal
	10200.00			100.00			10000.00			100.00
		100.00		0		100.00	10100.00			
(100.00)	10100.00							100.00		0

Notice that on the next to last line the assets (10,200.00) were balanced by the sum of the liability balances (10,100.00 + 100.00). The same balance is maintained on the last line after the transfer of the unspent $100.00: the balance of the assets (10,100.00) equals the sum of the balances of the liabilities (10,100.00 + 0)!

5. REFERENCE INFORMATION

To maintain a clear picture of all transactions recorded in the ledger a series of references and cross references are needed. The combination journal ledger form introduced in this book provides six columns for such references:

Transaction number
Date
Purchase order number
Transaction tracing
Memo
Clear (check column for completed orders)

In the first column of the form the transaction is numbered. There is one transaction per line, hence line numbers and transaction numbers are the same thing. Transactions can be numbered consecutively throughout the fiscal year (30, 31, 32...) or in a new sequence for each sheet (1/30, 1/31, 2/1 ...)

In the second column the date of posting is put. Abbreviations are possible here. The year may be written at the top of the column, and the month only given once per sheet. Here is an example:

Reference Information		
Tr. #	Date 1977	. . . . .
1	2 May	
2	3	
3	5	
4	9	
5	16	

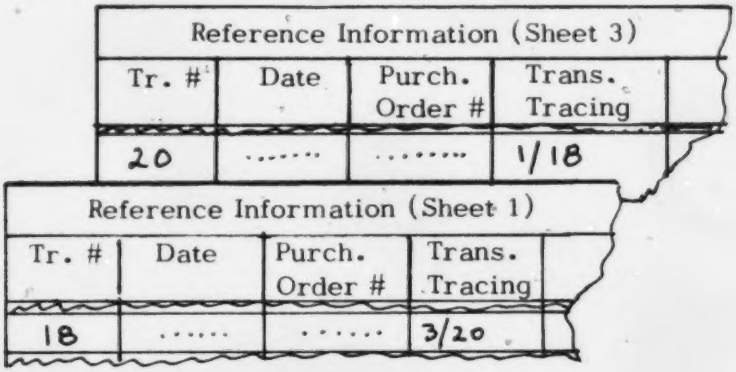
In the third column, the purchase order number is cited. Here is an example. On line 2, the posting is for a purchase order numbered 57629-4:

Reference Information			
Tr.#	Date 1977	Purchase Order #	
1	2 May		
2	3	57629-4	

It is assumed here that the library issues numbered purchase orders. Any future inquiries concerning this transaction can be answered by scanning this third reference column for the purchase order number.

In the fourth column are entered what I refer to as transaction tracings. The rationale for these is as follows. Suppose a purchase order was placed and encumbered on a certain day in October. The payment for this order clears in January of

the following year. And in May of that year a question concerning this transaction arises. It is cumbersome enough for the bookkeeper to track down the original encumbrance transaction. It will be even more laborious to tie this encumbrance transaction together with its payment transaction, which was recorded many ledger sheets away. If, however, the original encumbrance transaction, posted, say, on line 18, carries the line number of the corresponding payment transaction, say, 3/20 (if lines are numbered 1 to 31 per sheet), in the transaction tracings column, and vice versa, the bookkeeper's life is greatly simplified. Here is a sketch to show how the cross reference system works:



On occasion more than two transactions are related. In such cases the tracings on the line of the original entry consist of all subsequent line numbers pertaining to the purchase order in question. Here is a fictitious example of the resulting cross reference structure when three lines are related:

Reference Information			
Tr. #	Date 1977	Purch. Order #	Trans. Tracing
46	6 Mar	46783	188,280
47	8	93725	
188	3 Apr	46783	46
189	5	103665	
280	7 Jun	46783	46

The example shows that for purchase order 46783 three different postings were made, one starting transaction on 6 Mar on line 46, and two subsequent transactions on 3 Apr and 7 Jun on lines 188 and 280, respectively. If it becomes necessary to collect all the facts about purchase order 46783 the bookkeeper needs to find only one transaction, perhaps transaction number 280. The tracings then reveal that the basic posting for this purchase order was on line 46. The tracing on line 46, in turn, shows that another posting regarding this order was made on line 188. In seconds the bookkeeper has located all three transactions pertaining to this purchase order!

In addition to the first four columns there is a Memo column which may hold all kinds of additional information such as vendor's name, invoice number and date, and explanatory notes if and as required by the transaction. Here is an example:

Reference Information				
Tr. #	Date 1977	Purch. Order #	Trans. Tracing	Memo
45	11 Aug	57629-4	16	McCaffrey, BP-1602 4/8

The last of the reference columns, headed "Clear", is embedded in the encumbrances account. It is used to indicate by a check mark when all the transactions pertaining to one purchase order have been completed. This information is of great help to the bookkeeper trying to follow up on incomplete purchase orders. Suppose an order was encumbered on line 25 and paid for on line 55 (reference information and balances omitted for clarity):

	Encumbrances			
	dr	cr	CLEAR	bal
25		100 00	✓	
26		150 00		
54	20 00			
55	100 00		✓	

The check marks in the "clear" column tell the bookkeeper at a glance that transactions 25 and 55 are complete, but that the library is still waiting for invoices or other paperwork relating to transactions 26 and 54. The check mark in the "clear" column is used only if the encumbrances debits equal the encumbrances credits in the case. If there remains a difference the transactions cannot be considered complete.

6. MANAGEMENT INFORMATION: HOW TO INTERPRET THE LEDGER

If a double-entry system is maintained, the obvious information the bookkeeper will be able to give at any time is the exact amount of money that is left unencumbered in any given library fund. Also available are the exact amounts of money already spent, and those earmarked or encumbered.

By means of the check column embedded in the encumbrances account the bookkeeper can also quickly identify those transactions for which payments have not yet been made.

With the help of the reference information contained in the first five columns of the combined journal ledger form the bookkeeper can trace individual purchase orders and invoices to determine their status, find errors, or make adjustments.

In addition to these routine interpretations it is a relatively easy matter to use the ledger information as a basis for periodic reports. Let us assume, for instance, that a college library operated on a fiscal year beginning on 1 July, with all uncommitted money reverting to the treasury after 30 June of the following year. The librarian, anxious to spend his appropriations before the deadline, will probably welcome a monthly report comparing the current committment status of all the funds under his control. Here is a possible layout for such a report, compiled from ledger information in a matter of minutes:

Committment Report for Month of January 19.., XYZ Lib.							
	Appropr.	Encumbrances		Payments		Total Com'ted	
	$	$	%	$	%	$	%
A Hist	12,000	1,000	8.3	3,000	25.0	4,000	33.3
B Lang	10,000	1,000	10.0	4,000	40.0	5,000	50.0
C Phys	2,000	400	20.0	800	40.0	1,200	60.0
D Art	1,000	200	20.0	700	70.0	900	90.0
E Bio	1,000	800	80.0	100	10.0	900	90.0

A report like this reveals irregularities at a glance. In the example, funds D and E, Art and Biology, are 90 per cent committed (last column). The other three funds lag behind. In other words, the History, Language, and Physics departments are slow in buying books. Fund A, History, in particular, seems to require some corrective action. Perhaps the situation needs to be discussed with the department head in question to make sure no uncommitted funds remain at the end of the fiscal year.

Comparison of several monthly reports makes irregularities even more apparent, as in this example:

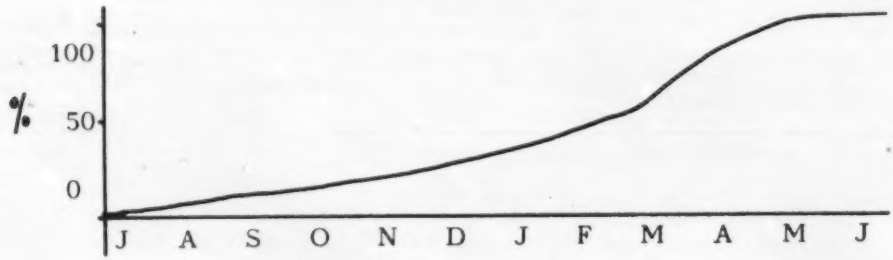
Fund	Total Committed (%)	
	December	January
A Hist	25.0	33.3
B Lang	30.0	50.0
C Phys	28.5	60.0
D Art	25.0	90.0
E Bio	31.0	90.0

Notice that there was nothing in the December data that would have foretold the drastic irregularities that surfaced in January. The jump from December to January is perhaps a little exaggerated in this fictitious example. But it demonstrates the uncontestable utility of such reports based on ledger information.

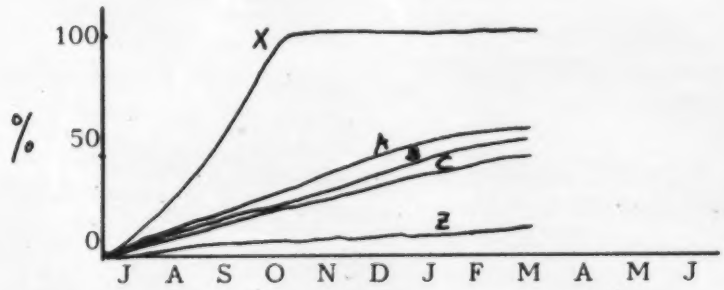
Here is another way to interpret the same data. If we study the information for funds D and E in some more detail we also notice that while both funds are 90 per cent committed, order fulfillment for fund E, Biology, lags behind all others. This is shown by the fact that only 10 per cent of the available money has actually been paid out. This may be expected and normal. But if it is not, the report certainly gives an early warning of trouble ahead. It may very well turn out that the entire lag is due to the slipping performance of one jobber, a matter that can probably be corrected if discovered in time.

Many other types of reports are feasible. Plots on graph paper showing the characteristics of certain series of data are

sometimes very effective. Take the example of a librarian who suspects that there are certain imbalances in his library's budget. He may find a comparative study of the following kind instructive. Let us assume a typical fund in his library shows these characteristics over a twelve months period:



In other words, about half the money is usually spent by March. By May, all of it is spent. Now let us assume that five funds, A, B, C, X, and Z, when plotted and superimposed, show these patterns by March of the current budget year:



Clearly, funds A, B, and C show the expected plot positions at the halfway mark (March). But funds X and Z deviate widely from expectations. In fund X, most of the money was gone by October, all of it by Christmas. This may be normal as in the case of a subscriptions fund. But it could also indicate that some trouble is developing. For one thing, this steeply rising curve could be evidence that this particular allocation is insufficient. Or it could indicate that much is bought that is unnecessary. It would certainly behoove the librarian to look for the reason behind this observed phenomenon.

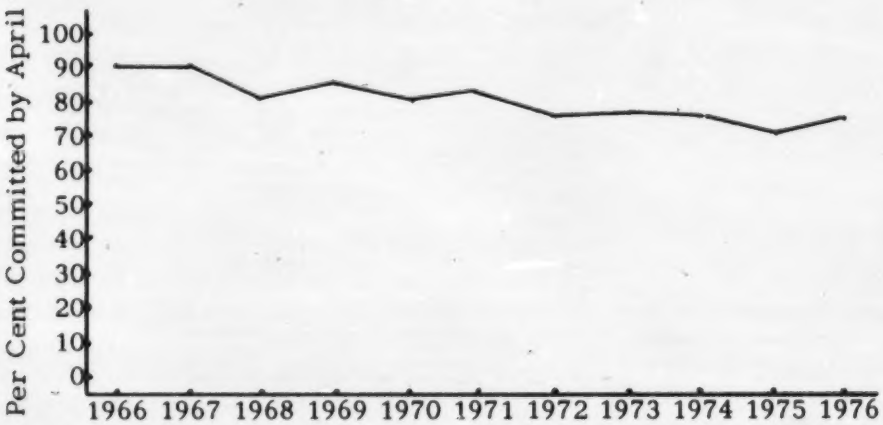
In fund Z, on the other hand, only 10 per cent of the money was spent by March. Again, this could be perfectly normal, depending on the circumstances. But it could also be a trouble sign. A flat curve like this could be an indication of lack of zeal on the part of those charged with the selection of suitable materials. But it could also be evidence of too much money in the fund! In either case, corrective action is required.

The study of accounting data over a longer period of time is sometimes of great interest. So-called time series have a way to reveal trends that would not be obvious from recent data only. As an example take the case of a library's ledger that shows that by 30 April, some 74 per cent of the year's budget allocation was spent or committed. The year before, only 70 per cent had been committed by that date. On the surface, these data show that the library has improved its purchasing performance. There is a better chance this year than last year that by the end of the fiscal year all available money will have been spent. But is this information a reliable basis for a relaxed attitude and hope-filled forecasts of the future?

To get a better idea of the history of these data one should look at comparable ledger balances for several past years. In 1966 and 1967, for example, 90 per cent of the allocation had been committed by 30 April. In 1969, 85 per cent, and so forth. Here are the complete (fictitious) data:

Year	Per Cent Committed	Year	Per Cent Committed
1966	90	1972	75
1967	90	1973	76
1968	80	1974	75
1969	85	1975	70
1970	80	1976	74
1971	82		

When these data are plotted on graph paper the following curve emerges:



The plot shows a gentle downward trend. The observed rise in the committment rate from 1975 to 1976 is only an apparent improvement. The wise administrator will consider corrective action before a crisis develops.

Management or exception reports like those described can be extremely helpful to the librarian. They are particularly attractive when they are inexpensive by-products of a manual bookkeeping system that also controls day-to-day operations.